

High-Speed Intercity Passenger Rail

SPEEDLINES

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High-Speed Rail
Development
Worldwide



Connecting America's Cities

p.5 FEATURE ARTICLE

CONTENTS

SPEEDLINES MAGAZINE

On the front cover:

THE PERPETUAL GROWTH OF HIGH-SPEED RAIL DEVELOPMENT EXPANDED MOST RECENTLY WITH SAUDI ARABIA (2018), MOROCCO (2018) AND DENMARK (2019). THE IMPLEMENTATION REACHES SWEDEN, AND MORE EXTENSIVELY SCANDINAVIA, CZECH REPUBLIC, THE BALTIC COUNTRIES, RUSSIA, EGYPT, SOUTH AFRICA, AUSTRALIA, CANADA, BRAZIL, IRAN, ISRAEL, INDONESIA, MALAYSIA AND SINGAPORE - ALL MOVING TO EXPAND THEIR HIGH-SPEED RAIL NETWORKS WORLDWIDE.



ABOVE: *High-speed rail has the ability to transform towns into cities, bridging communities, and creating jobs in an unprecedented way. Replacing short haul excursions with sustainable, comfortable alternatives, passengers find themselves spending less time in transit door-to-door.*

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3

CHAIRMAN'S LETTER

Greetings from our Chair, JOE GIULIETTI

4

UPCOMING 2022 EVENTS

5

HSR CONFERENCE

9

FTA'S TRANSIT WORKFORCE CENTER

11

WHITE HOUSE NEWS

12

WASHINGTON WIRE : IIJA

16

SPOTLIGHT



17

CALIFORNIA

19

CLEVELAND - CHICAGO CORRIDOR

24

SOUTHEAST CORRIDOR

29

RAILWAYS NEED INNOVATION

34

UIC : SUSTAINABLE TRANSPORT

36

CROSSWORD PUZZLE FUN



HS&IPR

Committee & Friends

A letter from our Chair: Joseph Giuliatti

Dear APTA members and advocates for the continuing campaign to bring high-speed passenger rail to the United States,

It's been a long campaign. But year after year we have made progress, and there is significant progress in America's passenger rail renaissance.

Please be sure to read Jeff Wharton's article outlining the upcoming APTA High-Speed and Intercity Passenger Rail Committee's (HS&IPR) Connecting America's Cities Conference in Philadelphia (March 30 – April 1). Also, see an important piece by David Wilcock and Peter Peyser where they outline the transformative changes coming to high-speed and intercity passenger rail as a result of the passage of the Infrastructure Investment and Jobs Act (IIJA).

It's exciting to see the progress we've made over the past decade. Now, we are on the verge of rejuvenating and building passenger rail services that will provide a more environmentally friendly, integrated transportation system that will enable travelers from rural and urban areas of our nation to achieve higher, more convenient levels of mobility.

While much attention has been focused on the Northeast Corridor and California, there is much progress occurring across the U.S. that will improve rail travel time, frequency, and reliability of intercity passenger rail service.

These are indeed exciting times for those who have dedicated our careers to this industry. But now is not the time to sit back and say "we've won." The fact of the matter is that we still have much more to achieve...much more to do.

We need a clear vision, a strong base of support at the local, state, regional, and national levels. I'm counting on all of you to do everything you can to make the United States a new global leader in high-speed and intercity passenger rail and model for equitable and environmentally sound mobility.

Looking forward to seeing everyone at the upcoming Conferences.



SAVE THE DATE

HIGH-SPEED RAIL CONFERENCE, MARCH 30-APRIL 1
PHILADELPHIA, PA

LEGAL AFFAIRS SEMINAR, APRIL 3-5
BOSTON, MA

MOBILITY CONFERENCE, MAY 1-4
COLUMBUS, OH

RAIL CONFERENCE, JUNE 5-8
SAN DIEGO, CA

TRANSFORM CONFERENCE, OCTOBER 9-12
SEATTLE, WA



HSR CONFERENCE

CONNECTING AMERICA'S CITIES

Contributed by: Jeffrey Wharton

Connecting America's Cities Conference Chair, and Director –
Contracts and Technical Services, SYSTRA USA

It is finally here, Connecting America's Cities in-person conference (March 30 – April 1, 2022, Philadelphia, PA). Visit APTA's website for details at <https://www.apta.com/conferences-events/high-speed-rail/> where you will find the program and a complete list of speakers with photos and bios.

It is still not too late to register and attend this pivotal event during this renaissance in High-Speed and Intercity Passenger Rail (HS&IPR).

The 3-day event will begin on Wednesday morning with a pre-conference workshop (which is included in the conference registration) to offer lessons learned from around the World. Many members of the International Union of Railways (UIC) and High-Speed Rail Committee will be on hand.

In addition, tours are available from Amtrak and Southeastern Pennsylvania Transportation Authority (SEPTA) to provide unique learning opportunities about the facilities and rail lines in the Philadelphia area.



The conference kicks off on Wednesday afternoon with Visions of State and Local Leaders. We will hear from Philadelphia Mayor Jim Kenney, Pennsylvania Governor Tom Wolf (invited), Swiss Ambassador Jacques Pitteloud, SEPTA General Manager & CEO Leslie Richards and National League of Cities Chair of Transportation Infrastructure and Service Committee Elaine Clegg.

We tap off the first day with a reception and an industry products and services showcase.

On Thursday, following a continental breakfast and a warm APTA welcome, we begin with a general session that will set the stage for Visions for HS&IPR. We are honored to have both Nuria I. Fernandez, Administrator, Federal Transit Administration (FTA), and Amit Bose, Administrator, Federal Railroad Administration (FRA). Other keynoters for the opening General Session include Polly Trottenberg, Deputy Secretary, U.S. Department of Transportation; Stephen Gardner, President and CEO, Amtrak; Jennie Louwerse, Deputy Secretary of Multimodal Transportation, Pennsylvania Department of Transportation; and François Davenne, Director General UIC. They will share and engage in a lively discussion on APTA's Vision Statement for a high performance national intercity passenger rail system as moderated by Al Engel, Immediate Past Chair of the APTA HS&IPR Committee.

There are two (2) plenary sessions beginning with Understanding the new Federal HS&IPR programs and initiates that feature senior members from the





the significant Federal investment for passenger rail, this is your opportunity to learn the latest news from those in the know. The second plenary will be over lunch to address Stations as Hubs - discussing transit connectivity, community development, intermodal and airport connections as presented by Amtrak, Connecticut Department of Transportation and Simon Fraser University.

In the afternoon we have six (6) concurrent programs that will offer a wide range of topics that are sure to be of interest to all. Topics include:

- Economic Impact at the Corridor Level where you will learn how economic development and impact assessments are shaping planning decisions as presented by EBP US, Minnesota Department of Transportation, Northern England Passenger Rail Authority and BART Link 21 Program.
- Project Delivery for Major Intercity Rail Projects will offer an overview of project rationale, key outcomes,



Aurora is the brand name for the fleet of Class 810 electro-diesel inter-city trainsets which Hitachi Rail is to supply for use on the Midland Main Line between London, Nottingham and Sheffield from 2023.

procurements, delivery issues and stakeholder engagement as presented by ASTM North America, the California High-Speed Rail Authority, Amtrak, and The Northeast Maglev (Japan).

- Planning for Connections across the Country will discuss best practices in planning for inter-city passenger rail service that will cover the FRA, Amtrak, Wisconsin Department of Transportation, Northeast Ohio Areawide Coordinating Agency, and the Southern Rail Commission.
- Workforce Capacity will address obstacles and solutions to attracting, hiring, and retaining the talent we need to ensure that the investment of public dollars provides broad-based benefits to all communities as discussed by the Mineta Transportation Institute, SYSTRA, Brotherhood of Railroad Signalmen, International Transportation Learning Center, and the Hillsborough Area Regional Transit Authority.
- Global Picture from Europe and Asia will offer advice for projects and how to implement high-speed rail with perspectives from SENER, ADIF (Spain), HSR2 (UK) and Japan Central Railway.
- Business Model for National High-Speed Rail will explore key features for successful business models that take into account our unique environment. Hear from an economist, Surface Transportation Board, North Carolina Department of Transportation, Texas Central Partners, CDPQ (Canada) and Brightline Holdings.

There will be networking breaks with a products and services showcase throughout the day.



ALL OF THE PROPOSED LEGISLATION WE HAVE SEEN IN THE LAST FEW MONTHS PROVIDE A VALUABLE FRAMEWORK FOR CONGRESS TO BUILD OFF OF AMERICA'S INFRASTRUCTURE BILL. AS SUPPORTERS OF FAST, FREQUENT AND RELIABLE TRAINS, WE NEED TO CONTINUE REACHING OUT TO OUR ELECTED OFFICIALS TO KEEP THE MOMENTUM GOING.



The second day of the conference will end with an exciting reception at the William H. Gray III 30th Street Station. This historic Station offers a great backdrop to relax and mingle with your friends and new acquaintances.

On Day Three, following a continental breakfast, we will host three (3) programs:

- No Time to Lose: Successful Intercity Passenger Rail Expansion on Shared Infrastructure to talk about the ways states, freight railroads and Amtrak can work together to deliver our future needs that will include comments from the Rail Passengers Association, Missouri Department of Transportation, Virginia Passenger Rail Authority, BNSF and Amtrak.
- The Potential for Private Investment in Intercity and High-Speed Rail will explore private-public financing options with perspectives from InfraStrategies, Surface Transportation Board, Build America Bureau, Gateway Development Corp., and Ernst & Young Infrastructure Advisors.
- Gen Z Envisions the Future of High-Speed Rail will include research and ideas from Middle School students for the future of high-speed rail with responses from industry experts including Engineering-News Record (ENR), ARC Alternative and Renewable Construction, WSP and independent consultant.

After the closing remarks and a conference recap with highlights over the past three days, enjoy the rest of the day with additional tour opportunities offered by Amtrak and our host SEPTA.

We have assembled an amazing list of speakers and industry experts. For a complete list of the speakers and their bios, please visit the APTA Conference Speakers website: <https://www.apta.com/conferences-events/>



“
*America is ready
for livable
communities.*
**AMERICA IS READY
FOR HIGH-SPEED
RAIL**

”

[high-speed-rail/2022-high-speed-rail-conference-speakers/](#)

This is an event that you will not want to miss. It is occurring at a historic time with passion and drive like we have not seen in a very long time.

Be part of history as we celebrate and realize “A Vision for Connecting America’s Urban and Rural Communities with Passenger Rail” as developed by the APTA HS&IPR Committee.



FTA'S TRANSIT WORKFORCE CENTER

LAUNCHES APPRENTICESHIP NETWORK

Contributed by: Xinge Wang and Julie Deibel-Pundt, International Transportation Learning Center

The December 2021 edition of Speedlines introduced FTA's new Transit Workforce Center (TWC), whose scope of work includes technical assistance for public transportation agencies and commuter rail agencies supported by FTA to recruit, hire, train, and retain a diverse workforce that is needed now and in the future. In support of its mission, the TWC is proud to announce the launch of the American Transit Training and Apprenticeship Innovators Network (ATTAIN).

THE IMPORTANCE OF REGISTERED APPRENTICESHIP IN WORKFORCE DEVELOPMENT

Registered apprenticeships combine technical instruction with hands-on learning and provide a pathway to highly-skilled, well-paid careers for a diverse population of workers. Apprenticeships are widely recognized across sectors as the most effective means of building a skilled workforce and can be implemented to build a pathway to upward mobility that help advance equity and diversity in transit. At a time when nearly all agencies are facing frontline workforce shortages, creating opportunities for a wide-range of workers through apprenticeships has proven to be a time-tested, highly-effective practice.

JOINING THE ATTAIN PEER NETWORK

Membership in ATTAIN provides public transportation agencies interested in implementing an apprenticeship with continuous support from the TWC and the opportunity to learn from each other



Mentor training session at AC Transit in Oakland, CA

through peer dialogue. This exchange of ideas and experiences complements the individual technical assistance that ATTAIN members will receive from the TWC to help agencies learn and apply best practices for registered apprenticeships. Committee members receive regular communications from the TWC and will be invited to participate in periodic virtual meetings and in-person meetings. Public transportation agencies interested in exploring and starting apprenticeship programs for the frontline workforce as well as those with established programs are invited to join the peer network:

How to Connect with the Transit Workforce Center and convening organization International Transportation Learning Center:

- Join the American Transit Training and Apprenticeship Innovators Network (ATTAIN)
- Sign up for our mailing list
- Attend Workforce Capacity workshop at the upcoming APTA High-Speed Rail Conference (more information below)
 - The first committee meeting for Bus Operations and will be held virtually on March 23, 2022, at 1:00 pm ET.
 - The first committee meeting for Bus Maintenance and will be held virtually on March 30, 2022, at 1:00 pm ET.
 - Public transportation agencies and commuter rail agencies supported by FTA can send specific workforce development inquiries to TWC staffers at TWC@transportcenter.org or 1-855-888-NTWC.



Thursday, March 31, 3:15-4:30

Workforce Capacity: To ensure the efficient movement of people and products, future transportation professionals must be ready to lead a more diverse, inclusive, and equitable transportation industry. A more diverse workforce yields a wider talent pool with a greater range of problem-solving resources, viewpoints, insights, and experiences. In this session, participants will examine obstacles and solutions to attracting, hiring, and retaining the talent we need to ensure that the investment of public dollars provides broad-based benefits to all communities we serve.

1. Moderator: Dr. Karen Philbrick, Executive Director, Mineta Transportation Institute; Officer at Large APTA HS&IPR Committee
Panelists:
2. Kim Slaughter, CEO, SYSTRA USA
3. Tim Tarrant, Vice President, Commuter/Passenger, Brotherhood of Railroad Signalmen
4. Amri Joyner, Sr. [Project Coordinator for Technical Assistance and Training](#), International Transportation Learning Center
5. Dwayne Sampson, President, Transportation Diversity Council

WHITE HOUSE

ADDS TWO STAFFERS TO IMPLEMENT \$1 TRILLION

The White House will be relying on two women in newly created roles to help lead the implementation of President Biden's \$1 trillion infrastructure plan; it announced the appointments of Katie Thomson and Winnie Stachelberg to departments that are central to the measure, which was signed into law in November.

Thomson will serve as the director of bipartisan infrastructure law implementation for the Department of Transportation, and Stachelberg was named senior adviser and infrastructure coordinator for the Interior Department. Each will lead a team to ensure the benefits of the law are delivered on time, on budget and in accordance with the tasks. The administration plans to add more positions across the country at every level over the coming weeks and months, including new civil servant jobs.

Thomson and Stachelberg are among the first hires to help execute the Biden administration's infrastructure plan to modernize roads and bridges, improve public transit, and make infrastructure greater resilience in the face of climate change. The administration says it plans to keep building out capacity at every level across agencies in the coming weeks and months and will be adding new civil servant jobs across the country.

Thomson is currently vice president and associate general counsel, worldwide transportation and sustainability at Amazon. Before joining Amazon, Katie worked on national and international transportation law and policy as general counsel of the Transportation Department and as chief counsel of the Federal Aviation Administration during the Obama administration. She also served as counselor to the transportation secretary and was the Transportation Department's first senior sustainability officer.

Stachelberg joins the administration from the liberal think tank Center for American Progress, where she

was the executive vice president for external affairs. Stachelberg also spent 11 years with the Human Rights Campaign (HRC), serving as both political director and the first vice president of HRC's foundation. She started her career as a budget analyst at the Office of Management and Budget.

Last month, the president announced Mitch Landrieu would be the supervisor of the infrastructure plan. The former Louisiana lieutenant governor became the mayor of New Orleans in 2010, five years after Hurricane Katrina ravaged the city. In a statement, the White House praised Landrieu for turning New Orleans "into one of America's great comeback story."

According to a senior White House official, Landrieu has called all of America's 50 governors and spoken to many in person — including seven Republicans — and will continue scheduling calls and meetings. Landrieu has also had face-to-face meetings with Pennsylvania Governor Tom Wolf, New York Governor Kathy Hochul and Chicago Mayor Lori Lightfoot. In addition, Landrieu has been connecting with state and local government associations, including the National Governors Association, U.S. Conference of Mayors, and National Association of Counties. Last week, more than 30 county mayors, chairs, and executives were at the White House and met with Landrieu.

During his calls and meetings, Landrieu has vowed the president and growing infrastructure implementation team will operate alongside governors, mayors, Tribal leaders, county officials, and other partners as one team with one mission: delivering results to the American people.

Washington Wire

Legislative Update



WHAT IT REALLY MEANS FOR HSR AND INTERCITY PASSENGER RAIL

Authored by: David Wilcock with contributions from Peter Peyser

On November 15, 2021, President Joe Biden signed into law the Infrastructure Investment and Jobs Act (IIJA) now referred to as the Bipartisan Infrastructure Law (BIL). This act has brought approximately \$1.2 Trillion of investment over the next five years through 375 plus programs supporting transportation, broadband, utility and clean energy infrastructure improvements. The investment includes \$550 Billion in new spending to supplement the \$470 Billion of funds Congress was already planning to authorize.

By now most of us are familiar with the high-level summary of the historic funding amounts included in the IIJA for passenger and freight railroads. Of the overall \$1.2 Trillion program, approximately \$102 Billion (8.5 percent) is designated for passenger and

freight rail. On an annualized basis, this is almost a seven-fold increase from current funding levels. As noted above, the bill split the funding into two buckets – advanced appropriations (programmed funds) and additional authorizations (new funds). The appropriated funds will require no further congressional action to be released over the next five years. The authorized funds are subject to appropriations action this year and in the ensuing four years.

This \$102 Billion investment is allocated across five primary programs; a sixth program draws from one of the primary programs. The funding levels are summarized in the table below. The purpose, the eligible recipients and the eligible uses of each program are as follows:

Table: Passenger and Freight Rail Funding

| Program | Advanced Appropriation | Fully Authorized Funds | TOTALS |
|---|-------------------------|-------------------------|--------------------------|
| Amtrak Northeast Corridor | \$6,000,000,000 | \$6,570,000,000 | \$12,570,000,000 |
| Amtrak National Network | \$15,750,000,000 | \$12,650,000,000 | \$28,400,000,000 |
| Consolidated Rail Infrastructure and Safety Improvements Grants Program | \$5,000,000,000 | \$5,000,000,000 | \$10,000,000,000 |
| Railroad Crossing Elimination Grant Program | \$3,000,000,000 | \$2,500,000,000 | \$5,500,000,000 |
| Federal-State Partnership for Intercity Passenger Rail Grant Program | \$36,000,000,000 | \$7,500,000,000 | \$43,500,000,000 |
| Restoration & Enhancement Grant Program (Takedown from Amtrak National Network Funding) | \$250,000,000 | \$250,000,000 | \$500,000,000 |
| FRA Operations and Research & Development | ----- | \$1,530,000,000 | 1,530,000,000 |
| TOTALS | \$66,000,000,000 | \$36,000,000,000 | \$102,000,000,000 |

AMTRAK NORTHEAST CORRIDOR GRANTS – The purpose is to fund capital projects eliminating Amtrak’s state of good repair backlog related to rolling stock, facilities, stations and infrastructure along the Northeast Corridor. Amtrak is the only eligible recipient of the funds identified. The funds may be used as the non-Federal match for projects included in the Federal-State Partnership for Intercity Passenger Rail Program.

AMTRAK NATIONAL NETWORK GRANTS – The purpose is to fund capital projects eliminating Amtrak’s state of good repair backlog related to rolling stock, facilities, stations and infrastructure on the National Network. The funds may be used to purchase new rolling stock, bring Amtrak-served stations into compliance with the Americans with Disabilities Act, address the deferred capital work backlog on non-NEC Amtrak owned assets, and eliminate obsolete assets associated with the National Network such as reservations, security, training centers and technology. As with the NEC Grants, Amtrak is the only eligible recipient.

CONSOLIDATED RAIL INFRASTRUCTURE AND SAFETY IMPROVEMENTS (CRISI) GRANTS PROGRAM – This program’s focus is on funding projects that improve the safety, efficiency, and reliability of intercity passenger and freight programs. A wide range of eligible uses were established as part of the original CRISI program. The IIJA expands the list to include four new applications: 1) measures to prevent trespassing; 2) preparation of emergency plans in communities that host trains carrying hazardous materials; 3) research, development and testing to advance innovation; and 4) rehabilitation, remanufacturing, procuring or overhauling locomotives to reduce emissions. There are 12 listed eligible recipients of the funds including, railroads, states, public agencies, Amtrak and other intercity rail passenger carriers.

RAILROAD CROSSING ELIMINATION GRANT PROGRAM – This is a new program focused on mitigating or eliminating hazards at rail-highway crossings. Eligible uses include grade separations or closures, track relocation, improvement or installation of safety devices, technological solutions and the planning, environmental review and design of eligible projects. The eligible recipients include states, political subdivisions of states, federally recognized Indian Tribes, units of local government, public port authorities, metropolitan planning organizations, or groups of the entities listed above.

Federal-State Partnership for Intercity Passenger Rail Grant Program (previously known as the Federal-State Partnership for State of Good Repair) – By far this program has the largest amount of funding available. While it is not a new program the name and the guidance has been significantly revised. The focus of the program is to fund capital projects that address SOGR backlog, improve performance or expand or establish new intercity passenger rail service including privately operated services. The eligible uses are similar to the other capital grant programs that are focused on eliminating SOGR backlog but also include projects to expand or establish intercity passenger rail service. States, Amtrak, public agencies and authorities, political subdivisions of states and federally recognized Indian Tribes are all eligible recipients.

RESTORATION & ENHANCEMENT GRANT PROGRAM (TAKEDOWN FROM AMTRAK NATIONAL NETWORK FUNDING) – Funds for these grants are taken from the Amtrak National Network Funding program (the values in the table above reflect this adjustment). The focus of the program is to provide operating assistance to initiate, restore or enhance intercity passenger rail services. Eligible uses include establishing new services, added frequencies, service extensions and new on-board services. Eligible recipients include states, public agencies and authorities, political subdivisions of states, federally recognized Indian Tribes, Amtrak and other intercity passenger rail carriers. A rail Carrier in partnership with any one of the previously listed entities is also qualified to receive funds.

OTHER PROGRAMS – In addition to these rail-specific programs, the bill contains programs available for multiple purposes for which intercity rail would be eligible. These include a \$10 billion National Infrastructure Investment program (known colloquially as “megaproject”) and a \$7.5 billion “Regional/Local Investment Program” which codifies the program now referred to as RAISE (previously BUILD and TIGER). Amtrak, states and regional transportation agencies are eligible to apply for funds from these programs.

More information about these programs as well

as the rest of the programs included in the IIJA can be found in the Building A Better America Guidebook released by the White House on January 31, 2022. The document, which is available at <https://www.whitehouse.gov/build/> provides the initial information on all 375 plus programs that are included in the legislation.

As important as the funding programs and anticipated levels of investment is the anticipated impact they could have on the intercity passenger rail industry. To help answer that question, the House Committee's Transportation & Infrastructure Subcommittee on Railroads, Pipelines, and Hazardous Materials held a hearing on December 9, 2021 titled Leveraging IIJA: Plans for Expanding Intercity Passenger Rail. The hearing, led by subcommittee chair Representative Don Payne, featured testimony from six witnesses representing the passenger rail industry: Stephen Gardner – President of Amtrak; David Kim – Secretary of the California State Transportation Agency; Kevin Corbett – President and CEO of New Jersey Transit and Co-Chair of the Northeast Corridor Commission who spoke on behalf of Northeast Corridor Commission; Julie White – Deputy Secretary for Multimodal Transportation at the North Carolina DOT and Commission Chair of the Southeast Corridor Commission spoke on behalf of the North Carolina Department of Transportation and the Southeast Corridor Commission; Donna DeMartino – Managing Director of the Los Angeles – San Diego – San Luis Obispo Rail Corridor Agency; and Knox Ross – Mississippi Commissioner and Chair of the Southern Rail Commission. A video of the hearing as well as all the written testimony of the six witnesses can be found at <https://transportation.house.gov/committee-activity/hearings/leveraging-iija-plans-for-expanding-intercity-passenger-rail>

In his opening remarks, Chairman Payne noted that the "IIJA makes the biggest investment in passenger rail since the creation of Amtrak". He went on to say that "the IIJA also contains an historic \$66 Billion in reliable investments for our national rail system roughly the amount Congress has appropriated to Amtrak since we created the railroad 50 years ago". All the witnesses reinforced the Chairman's comments with particular emphasis on the agency or organization they represented.

The impact of the funding on both Amtrak's Northeast Corridor as well as the National Network was addressed by Stephen Gardner. He opened his testimony by

thanking Subcommittee Chairman Payne, House Transportation & Infrastructure Committee Chair Peter Defazio and the entire T & I Committee for the pivotal role they played in creating the IIJA bill. Gardner commented that "the \$58 Billion for investment in Amtrak and intercity passenger rail is truly transformative. It fulfills at last the long-held dream of adequate, multi-year federal funding to begin the modernization of Amtrak's assets and, working in partnership with our state partners, Secretary Buttigieg and the United States Department of Transportation (USDOT), significant expansion of our route network". He noted that much of the focus will be on the stage of good repair needs along the Northeast Corridor but will also include the Amtrak-owned Keystone Corridor and Springfield Line, Amtrak-owned trackage in Chicago and on the Michigan Line, and the portions of the Albany Line of the Empire Corridor that are owned or leased by Amtrak.

Gardner also spoke about the impact of the IIJA funds on the National Network. He commented that this bill will allow Amtrak to begin the replacement of the long-distance fleet as well as upgrade many of the stations Amtrak serves. Amtrak's ConnectUS plan was discussed and how the IIJA will help lead to the rollout of this plan.

Kevin Corbett focused his remarks on the NECC's C35 Plan that was released in July 2021 (see Speedlines Issue 32: https://www.apta.com/wp-content/uploads/SPEEDLINES_HSIPR_Committee_Issue_32_.pdf). He noted that the \$117 Billion/15-year plan included over 150 projects along the NEC between Boston MA and Washington DC. The IIJA will help keep key projects moving along such as the replacement of the B&P Tunnels, the Gateway Program, the replacement of the Connecticut River Bridge and state of good repair projects along the length of the NEC. Corbett noted that the C35 Plan has a \$100 Billion funding gap but that the IIJA bill "provides a significant down payment to begin to make progress on this imperative work up and down the Corridor".

California hosts four Amtrak long distance routes (the California Zephyr, Coast Starlight, Sunset Limited, and Southwest Chief) and operates three state supported services (the Pacific Surfliner, San Joaquins and Capitol Corridor). The three state supported corridors comprise close to 20 percent of Amtrak's entire ridership with the Pacific Surfliner services carrying the

highest ridership of a non-Northeast Corridor service. Secretary Kim noted that California's sustainable transportation strategy is focused on moving trips from the highway to rail. He commented that "California appreciates the \$16 billion provided by the IIJA over five years for Amtrak's National Network, which can be used to upgrade California Amtrak stations and related facilities to full Americans with Disabilities Act (ADA) compliance, rehabilitate and replace old Amtrak-owned fleet and facilities, and conduct corridor development activities". This funding is important to California as the 2018 California State Rail Plan identified rail focused investments that are projected to result "in 88 million daily passenger miles diverted to rail from highways by 2040, and intercity and regional rail ridership is expected to increase from 115,000 daily trips to 1.3 million daily trips by 2040".

Secretary Kim also discussed the impact of the \$36 billion for the Federal-State Partnership for Intercity Passenger Rail program on California. He noted that California appreciates the reforms and expansion of the program which now makes at least \$12 billion of the funds available for non-Northeast Corridor projects. This \$12 billion will help expand California's critical, nationally significant rail projects. The IIJA funds will help address sustainability and resiliency projects across the state rail system especially along the Pacific Coast. Secretary Kim also sees many opportunities for the funds to help with the delivery of the state's high-speed rail network.

Donna DeMartino spoke extensively about the Pacific Surfliner service which her agency (LOSSAN) manages as well as the other two state supported rail services in California. She emphasized both the federal and state investments that have been made in the services over the years and the success that has occurred. DeMartino commented that "with the passage of the Infrastructure Investment and Jobs Act, we will be working closer than ever with our host railroad and regional partners to identify projects that can enhance and expand operations on the Pacific Surfliner". The IIJA funds will help LOSSAN implement projects from their \$300 million dollar capital program including two maintenance facility projects that will allow for better fleet utilization and expanded service. The Central Coast Layover Facility project would allow an additional Pacific Surfliner train to be stored overnight in San Luis Obispo and the San Diego County Maintenance and Layover Facility

will allow better utilization of rolling stock, increase maintenance capabilities in southern California, create jobs, and ensure we maintain the required train storage needed to expand service. LOSSAN is also interested in purchasing their own rolling stock as the other two California services already do so that they have better control over their equipment.

Speaking on behalf of the Southeast Corridor Commission and NCDOT, Deputy Secretary White spoke of the importance of the funds being made available to help with the development of the S-Line connecting Richmond VA and Raleigh NC. Development of the S-Line for intercity passenger rail service will improve travel south of Richmond by providing a more direct link to Raleigh thereby reducing trip time and improving travel speeds. She commented that the environmental work is complete for this corridor and that Virginia and North Carolina are working to advance the design and initial operating segment of service. Deputy Secretary White noted that "we have defined incremental development phases both large and small to be ready to maximize federal dollars to construct and implement new passenger rail service, such as expanding our Piedmont service that currently runs from Charlotte to Raleigh further north to connect to communities like the Town of Wake Forest, and large projects such as a full build out of the entire 163-mile corridor from Raleigh to Richmond. We are also examining how we can improve project delivery to get the line into service faster. Often it takes too long to build infrastructure and innovative ways to deliver projects faster is a must".

There was a lot of information presented by all six witnesses as to the impact of the IIJA on intercity passenger rail. Many similar points were emphasized by all the witnesses. In his testimony before the Subcommittee, Knox Ross probably summed it up best by saying "I also want to simply say thank you because we have waited over 50 years for long term funding in support of a robust passenger rail system and now we have it through the Bipartisan Infrastructure Law. This committee and its corresponding Senate Commerce Committee have delivered on the promise and power of passenger rail with an extraordinary investment".



IN THE SPOTLIGHT



KATHERINE LIST
COMMUNITY PLANNER

"This is an exciting time for passenger rail in America. We have the opportunity for generational investments in new and expanded services that create high-quality connections across rural and urban areas while helping to reduce greenhouse gas emissions. Intercity passenger rail plays an integral role in a transportation system that incorporates principles of equity, expanded access, resiliency, and sustainable development – let's get moving!"

FEDERAL
RAILROAD
ADMINISTRATION

PASSENGER RAIL
POLICY AND
OVERSIGHT DIVISION



KATHERINE YOUNGBLUTH
DIRECTOR, PLANNING

"I've been privileged to play a part in intercity passenger and freight rail initiatives in Virginia, including Long Bridge and Transforming Rail in Virginia Program of projects."

VIRGINIA
PASSENGER RAIL
AUTHORITY



TAMARA NOEL
ASSISTANT DIRECTOR

"My expertise and experience include all facets of Amtrak operations within the overall freight objectives on BNSF. I have devoted major portions of my career to helping BNSF improve the Amtrak relationship and its service to Amtrak customers."

BNSF

PASSENGER TRAIN
OPERATIONS

CALIFORNIA

HIGH-SPEED RAIL'S PROGRESS & OPPORTUNITIES

Contributed by: Adam Taslitz, Executive Fellow
California High-Speed Rail Authority, SACRAMENTO

Though COVID-19 has continued to impact how the California High-Speed Rail Authority (Authority) operates, it has not stopped the advancement of the nation's first electrified high-speed rail project. With the re-emergence of the federal government as a funding partner with a renewed focus on sustainable infrastructure, California is well positioned to pursue new opportunities and achieve continued progress on the nation's first high-speed rail project.

The enactment of the recently passed "Bipartisan Infrastructure Law"—the largest investment ever in public transit—creates new opportunities for the Authority to compete for billions of dollars in federal funding provided for passenger rail projects. By establishing strategic priorities for high-speed rail project funding targets, California is prepared to effectively leverage these federal investments.

California high-speed rail is unique nationally and the state possesses funds to match federal investment and amplify their impact. Earlier this year, Governor Gavin Newsom proposed his 2022-2023 Budget and included a \$15 billion program of investments focused on infrastructure statewide, including investments in high-speed rail and local and regional transit projects. These developments provide a massive opportunity for California High-Speed Rail.

The Authority plans to leverage this historic federal investment by pursuing different pots of funding totaling more than \$57 billion in which the Authority is eligible to compete. Specifically, the grant opportunities are the National Intercity Passenger Rail fund, the Consolidated Rail Infrastructure and Safety Improvements (CRISI), the National/Regional Significance (Mega Project), the Rebuilding American Infrastructure with Sustainability and Equity (RAISE), the Infrastructure for Rebuilding America (INFRA), and the Rail/Highway Crossing Elimination. These six pots all aim to accomplish a wide variety of transportation

goals, from eliminating dangerous grade crossings to investing in rail projects that promise to create clean and efficient infrastructure.

The Authority has successfully applied to some of these pots of funding before and intends to compete for these funds in 2022. Recently, the Authority was awarded a \$24 million RAISE grant to help deliver improvements to safety, environmental justice, and economic development to the City of Wasco near Bakersfield. The Authority also applied for CRISI grant funding for two separate projects—the Fresno Depot in downtown Fresno and the pre-apprenticeship program at the Central Valley Training Center in Selma—that will bring better safety, reliability, and efficiency to rail infrastructure. In addition to these grant opportunities, the Biden administration restored nearly a billion dollars back to the program that the previous administration proposed to rescind. We look forward to continuing to collaborate with an excited, supportive, and engaged federal partner.

Beyond these new, future funding opportunities for the Authority, we continue to make significant progress in the environmental, design, and construction of the first high-speed rail. Much of this progress is detailed in our recently released Draft 2022 Business Plan.

The project has created more than 7,300 good paying labor jobs, with an average of 1,000 workers a day at dozens of construction sites in the Central Valley. Daily construction jobs have tripled since 2018.

In the past three years in the Central Valley, we have advanced design from 30% to nearly 100%, increased the number of structures under construction or completed from 19 to 66, and increased the miles of



The San Joaquin River Viaduct and Pergola structure. Spanning approximately 4,741-feet with the top of the viaduct spanning 43-feet wide. The 210-foot arch span over the San Joaquin River is supported by 20 pre-cast floor beams. March 2021.



Running parallel to State Route 99, The completed signature arches of the San Joaquin River Viaduct straddle the Fresno and Madera county line and represent the northern gateway into the Central Valley. April 2021.

investments in shared corridors. These investments will provide immediate benefits to existing operators and prepare these corridors for state-wide high-speed rail service as we continue to make progress on the full Phase 1 system from San Francisco to Los Angeles/Anaheim.

A reengaged federal partner will help California deliver a project that expands economic prosperity, improves mobility, and combats the effects of climate change. Building upon our past progress and by capturing new opportunities, the Authority will lead the way for the nation by creating our country's first high-speed rail system.



Located in Kings County, the Hanford Viaduct will span more than a mile in length. Construction is currently in progress on the structure that connects the deck of the structure to the ground. September 2021.

guideway open for work from 47 to 86 miles. Ninety percent of the parcels needed for construction in the Valley have been acquired. The Authority just completed the environmental documents for the Burbank to Los Angeles section and is on pace to environmentally clear 422 miles by mid-2022.

With the strong potential of a federal-state funding program, we are working to have an initial high-speed rail operating segment connecting Merced, Fresno, and Bakersfield ready for passenger service by the end of the decade. The Authority will invest statewide to advance engineering and design work as every project section is environmentally cleared. We will devise a long-term funding strategy to extend high-speed rail beyond the initial operating segment in the Central Valley and make targeted



The 3,700-foot Cedar Viaduct will carry high-speed trains over State Route 99, North and Cedar avenues. The dual-span of arches are taking shape and will eventually be nearly 179 feet long and nearly 40 feet tall. May 2021.

CLEVELAND – CHICAGO CORRIDOR

THE OPPORTUNITY... WHAT ABOUT EMERGING REGIONAL CORRIDORS?

Contributed by: Ken Sislak



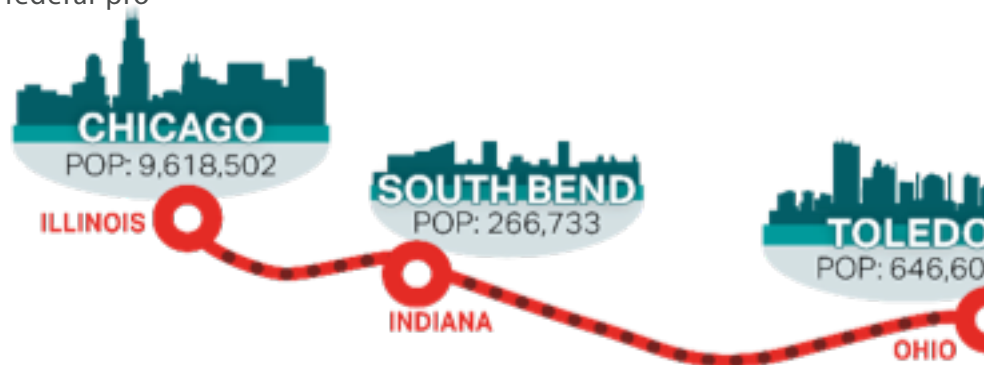
In April 1959, Trains magazine issued a Special Edition that contained a 38-page report titled, "Who Shot the Passenger Train?" in which David P. Morgan explained the decline and fall of the American passenger train. The article cited a variety of reasons

for the decline of the passenger train. Among the many reasons were antiquated union rules requiring train crews to be paid one day's pay for every 100-miles of operation and overtime for extra miles; antiquated regulatory practices and federal programs that subsidized the use of automobiles and the nascent airline industry. The interstate highway system and the predecessor of what is today called the Essential Air Service program had a devastating impact on passenger train ridership and revenue. In addition, the U.S. Postal Service began moving First Class mail cross-country by airplane instead of by passenger train

further reducing revenue to the struggling passenger rail industry.

The result of these federal programs has had a lasting impact, both positive and negative, on the American experience. The interstate highway system has positively influenced economic growth and provided substantial benefits to its many users. Commercial trucking grew substantially with the introduction of new interstate highway routes making it a cheaper option for the transportation of raw and manufactured materials at the cost of siphoning revenue from privately-owned railroads. Commercial bus lines using the interstate freeway system and the enticement of the open road encouraged many people to abandon passenger trains in favor of buses or driving alone.

The development of the interstate highway system has been a crucial factor in the decline



of passenger and freight rail service and the increase of greenhouse gas emissions (GHG), which may be contributing to climate change. The largest sources of transportation-related GHG include passenger cars, medium- and heavy-duty trucks, and light-duty trucks, including sport utility vehicles, pickup trucks, and minivans. These sources account for over half of the emissions from the transportation sector. The remaining greenhouse gas emissions from the transportation sector come from other modes of transportation, including commercial aircraft.

Aviation contributes significantly to GHG emissions. Commercial aircraft were responsible for about 3 percent of total U.S. carbon dioxide emissions and nearly 9 percent of GHG emissions from the U.S. transportation sector. A burgeoning movement known as 'flight shame' calls on travelers to avoid air travel when possible as a method of fighting climate change. The growing 'flight-free movement' in Europe questions the necessity of air travel. Earlier this year, France banned air travel for trips that can be taken by train in under two and a half hours as part of its effort to reduce GHG emissions by 40 percent by 2030.

Can trains compete with airplanes? Yes they can and especially in those corridors of 500 miles or less. For example, Spain constructed its first high-speed rail line between Madrid–Seville in 1992. The Corridor is 293-miles (472 km) long. Alta Velocidad Española (AVE) operated by Renfe, the Spanish national railway company, runs trains at speeds of up

to 193 mph (310 km/h) in this Corridor. Travel time between the two cities was reduced by over half from over a 5-hour train trip to about a 2.5-hour trip. The new high-speed rail line radically changed the modal split between Madrid and Seville. The share of air traffic decreased between 1991 and 1994 from 40 percent to 13 percent; the combined share of car and bus decreased from 44 percent to 36 percent. The share of railway traffic increased from 16 percent to 51 percent, while total traffic increased by 35 percent. Today, the train trip between Madrid and Seville handles about 89 percent of all rail and air traffic between the cities.

Similarly, air travel in the 400-mile Corridor between Milan and Rome has plunged since the introduction of high-speed rail service. Traveling between Milan and Rome by train takes just slightly less than three hours. And, of course, the train stations are in the city center with access to taxi and public transit. There's no need to arrive early before your train departs -- the doors close two minutes before departure. This convenience has increased the number of people taking the train from 1 million in 2008 when the new high-speed line was opened to over 3.6 million passengers in 2018. Over 67 percent of the people traveling between the two cities now take the train. Trenitalia commissioned a report in 2019 to look at how things had changed in the first decade of high-speed trains. It showed that the number of trains on the lines had doubled, and that passenger numbers on all its high-speed train routes had rocketed from 6.5 million in 2008 to 40 million in 2018. The success of the high-speed train network in Italy doomed state-owned Alitalia, which primarily served the domestic travel market. Alitalia filed for bankruptcy and stopped flying October 14th.

In the United States, the California high-speed train is being designed to relieve air traffic congestion between Los Angeles and San Francisco. And Texas Central Railway is planning and designing a high-speed rail line connecting Dallas – Houston. Amtrak's Acela



high-speed train operating between New York and Washington, DC has impacted the air shuttles that once dominated the travel market in the Northeast Corridor. Amtrak estimates that it's high-speed trains handle 70 percent of the air/rail travel market. The Northeast Corridor Intercity Travel Study (Northeast Corridor Commission, September 2015) confirms Amtrak's impressive rail market shares relative to the airlines in the Northeast Corridor. When buses are included the market share of rail among the commercial travel modes falls to 41 percent. Buses carry 34 percent, while airlines carry 25 percent.

Can trains compete with air and cars in other corridors? Increased frequencies and reliable schedules are time competitive with automobiles, and in some cases airplanes. More trains can relieve highway and air traffic congestion with positive environmental benefits through reductions in GHG emissions. We see examples throughout the country where good frequent service is making a difference. The Los Angeles – San Diego Surfliner service is the third highest ridership route in the Amtrak system. The Chicago – Milwaukee Hiawatha and the Seattle – Portland Cascades services are other good examples.

An emerging corridor is Cleveland – Chicago, identified as such in the recently released Federal Railroad Administration (FRA) Midwest Regional Rail Study. Amtrak operates two daily long-distance trains between Chicago and the East Coast in a rail corridor owned by Norfolk Southern (NS) passing through Toledo – Cleveland. Amtrak trains are the Capitol Limited, which operates between Washington, D.C., and Chicago; and the Lake Shore Limited, which operates between Boston and New York City and Chicago. Service is designed to depart and arrive at the termini at customer friendly times. However, Toledo and Cleveland are mid-route station locations and service is generally provided in the

middle of the night. These Amtrak trains experience significant delays in the Chicago – Cleveland segment of the corridor due to conflicts with heavy volumes of freight train traffic. The average delay for September 2021 was over 30-minutes at Cleveland. Amtrak's Connect US Plan proposes expanding service in this corridor to provide customer friendly daylight departure and arrival times for the Chicago – Cleveland segment of the corridor.

The 341-mile Cleveland - Chicago Corridor is home to over 14 million people living in urbanized and rural communities located along the former New York Central Railroad (NYC) rail route. The corridor connects three of the Top 100 urbanized areas in the country. And it connects many rural communities. Of the 341 route miles between Cleveland and Chicago, 170.3-miles pass through rural communities. Nearly 50 percent of the route traverses rural area.

Intercity passenger rail service has long been a travel option between Cleveland and Chicago dating back to the mid-19th century. Prior to the creation of Amtrak, the New York Central Railroad (NYC) and its successors operated a significant number of passenger trains along this route. The NYC 1956 timetable listed nine daily passenger trains operating on the route between Cleveland - Chicago. These trains were the Great Lakes, 5th Avenue Special, New England States, Pacemaker, Chicagoan, Forest City, Commodore Vanderbilt, Iroquois, and 20th Century Limited. An additional train operated on a small segment of the route between Cleveland and Toledo. The

| Total Air Trips Cleveland - Chicago | | | | | |
|-------------------------------------|-----------------|-----------|-----------------|------------|----------|
| Airport Pair | 2019 Passengers | | 2021 Passengers | | Recovery |
| | Q2 | Annual | Q2 | Annualized | |
| CLE - ORD | 220,435 | 812,136 | 131,342 | 481,340 | 60% |
| CLE - MDW | 80,209 | 318,735 | 58,923 | 233,055 | 73% |
| Total Air Trips | 300,644 | 1,130,871 | 190,265 | 714,394 | 63% |

Source: FAA



Amtrak's eastbound Lake Shore Limited is sandwiched between an eastbound NS stack train and a parked grain train in Olmsted Falls, Ohio, on Saturday, Aug. 30, 2014. Severe congestion on NS caused No. 48 to arrive in Cleveland more than six hours late. Photo courtesy Amtrak in the Heartland.

Detroit operated between Boston/New York City with stops in Cleveland and Toledo. In total, ten passenger trains operated in both directions daily along the Cleveland - Toledo segment of this route.

The schedules of these NYC passenger trains were developed to run on-time with minimum conflicts with scheduled freight trains. Delays for connecting services were minimized. Scheduled running time for most trains between Cleveland and Chicago was about six hours. The infrastructure and physical plant was in place to accommodate all this passenger service. But as the Ohio Turnpike opened in 1955 and the interstate highway network was completed, people began driving and taking trains less. As a result of declining ridership, the number of passenger trains operating in this corridor also declined from the ten daily roundtrip trains to three daily roundtrip trains in 1967.

Soon thereafter, Congress enacted The Rail Passenger Service Act of 1970 creating the National Railroad Passenger Corporation (Amtrak) alleviating the railroads of their common carrier duty to transport passengers. Amtrak commenced operations on May 1, 1971, and oddly, Cleveland, then the nation's 12th most populous city, was not on the national route map. It took Congressional

action by former U.S. Senator Robert Taft, Sr. (R-Ohio) to urge Amtrak to add the Lake Shore Limited in 1975 as an experimental route. The train was an immediate success and continues to operate daily today.

People living in the Corridor no longer have the wide array of travel choices they once enjoyed mid-20th Century. Train travel between the major cities in this Corridor has been scaled back from ten trains to two trains a day in each direction arriving and departing at inconvenient times in the middle of the night. This inconvenience is forcing people to drive cars or fly on airplanes for travel to and from Chicago. Over 1.1 million flew on airplanes between Cleveland and Chicago prior to the pandemic. Today, air travel between the two cities has grown to 63 percent of pre-pandemic levels.

To achieve the environmental goals established by the Biden-Harris Administration, train travel must again become a viable travel option. This can only happen if train travel is convenient, reliable, on-time and frequent. Imagine if train travel between Cleveland and Chicago could replicate the success of Milan – Rome or Madrid – Seville. That would require an enormous investment. So, let's start with a more modest "fix it first" strategy

and then grow the service from that improved baseline.

Amtrak's Lake Shore Limited and Capitol Limited operates over the same route as the former NYC passenger trains between Cleveland and Chicago. However, the trains scheduled running time between Chicago and Cleveland today is just a little over 7 hours. This is one hour more than the NYC trains of the 1940's and 1950's. Travel by car between Downtown Cleveland and the Chicago Loop is 5.5 hours according to Google maps. But that travel time is highly unreliable due to weather, traffic congestion and other factors. Current air travel time between CLE and either ORD or MDW is approximately 1.5 hours. Add-in the check-in time and waiting time and the access/egress time to get from the airports to the Chicago Loop and the total trip time can be as much as 3-4 hours.

Train travel in the Corridor today is unreliable. The average delay arriving in Cleveland from Chicago is over 30-minutes. It is not uncommon for trains scheduled for the middle of the night to arrive in Cleveland 12-hours late in the middle of the day. The on-time performance (OTP) of the two Amtrak long-distance trains serving Cleveland and Toledo are abysmal and fall well below the 80 percent OTP metric established by the FRA as illustrated in the chart below.

The Lake Shore Limited and Capitol Limited OTP is affected by many factors. Freight train interference and dispatching protocols, which often favor freight train delivery reliability over statutory preference for passenger trains, is one of the primary factors affecting passenger train OTP.

Let's fix the capacity issues. We need to put back infrastructure and fixed plant lost to cost cutting over the years. This would enhance rail line



capacity permitting freight and passenger trains to operate smoothly and on-time in this emerging corridor. In exchange for public investment to increase line capacity, the host railroad should be willing to provide more slots for additional trains and share in some of the cost. Next, we can incrementally increase speeds to be more time competitive with cars and airplanes. Once we run out of capacity in this Corridor, then we can build a parallel high-speed rail line similar to the incremental approach implemented in France, Spain and Germany. Imagine, high-speed trains operating city center to city center in this Corridor at slightly less than three hours, which is time competitive with air service and far more comfortable and productive. It is achievable in this Corridor.

But, first, we need to get more trains running between Cleveland and Chicago at customer friendly times as outlined in the Amtrak Connect US plan.

Long-Distance Train On-Time Performance in Corridor

| Train | 2017 | 2018 | 2019 | 2020 | 2021 |
|---------------------------|-------|-------|-------|-------|-------|
| Lake Shore Limited | 47.6% | 41.9% | 44.0% | 60.5% | 55.1% |
| Capitol Limited | 47.3% | 30.8% | 28.5% | 45.2% | 28.7% |

Source: Amtrak Performance Reports



AN INVESTMENT IN MOBILITY AND CONNECTIVITY

Contributed by: Julie White, Deputy Secretary for Multi-Modal Transportation

Communities of the future will require transportation systems that better connect people to jobs, health care, education, recreation, and opportunity. The Southeast Corridor (SEC), a planned network of passenger and freight rail lines that would run between Florida and Washington, represents the perfect opportunity to further those connections.

Developing the SEC and advancing projects through our collaborative approach could unlock economic benefits up to \$42 billion. Advancing the Southeast Corridor has been underway for decades, but now is the time to recognize that the corridor remains the opportunity to create additional rail service capacity and connect the Southeast and the Northeast through a high-performance rail network.

PLANNING

In 1992, the Federal Railroad Administration (FRA) identified five corridors as future high-performance rail networks that would support safe, efficient, and environmentally friendly transportation across growing regions. One of those critical corridors was the Southeast Corridor, which initially stretched from Washington, DC south through Virginia and North Carolina and was later extended to South Carolina, Georgia and Florida.

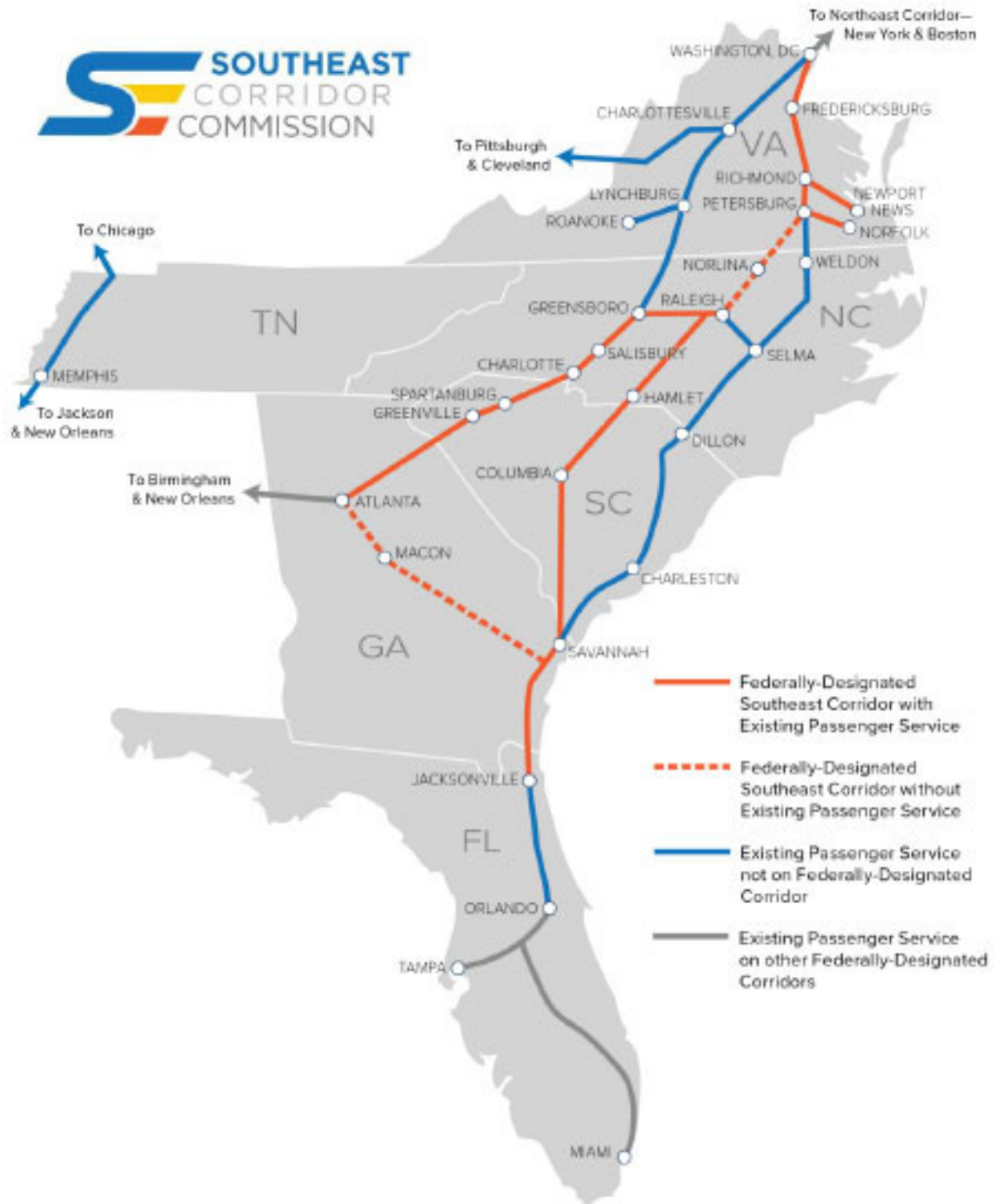
The story of progress toward realizing the vision of the Southeast Corridor is one of cooperation, coordination, and creativity. The scope of the

Corridor – approximately 500 miles long and crossing multiple states, counties and municipalities – required multiple feasibility studies and a tiered approach to project development. The NC Department of Transportation's Rail Division and the Virginia Department of Rail and Public Transportation (VDRPT), in partnership with the FRA and the Federal Highway Administration (FHWA), first developed a program-level Tier I Environmental Impact Statement (EIS). The Tier I EIS reviewed several route corridors from Washington, DC to Charlotte, with a Record of Decision (ROD) completed in 2002.

After extensive evaluation, coordination, engineering and public involvement, a Tier II EIS was completed for the 162-mile corridor from Richmond to Raleigh. A 2016 ROD solidified the route, allowing the project to move to final design and construction. The plans for this portion of the corridor include reestablishment of the under-used and partially abandoned S-Line.

Meanwhile, in 2014, FRA and VDRPT initiated a Tier II EIS for the development of the 123-mile corridor between Washington, DC and Richmond. This segment of the Southeast Corridor uses the existing CSX corridor but adds additional tracks to increase capacity for both intercity service and commuter and freight service. In September 2019, the FRA approved the ROD, allowing this segment to move to final design and construction phases.

Further south, the Atlanta-to-Charlotte Tier I EIS



and ROD were completed in June 2021. Like the Washington, DC-to-Charlotte Tier I EIS, the Atlanta-to-Charlotte EIS identified multiple corridor alternatives and the 345-mile preferred alternative will be further refined in a subsequent Tier II analysis.

The establishment of the Southeast Corridor Commission (SCC) built momentum for and informed the development of the corridor. The commission's mission is to facilitate the Southeast states to work with the FRA, Amtrak, and the freight railroads to implement a common vision for the Southeast Corridor. Instead of each state independently pursuing intercity passenger rail projects, the commission is driving collaboration and planning to better position the corridor to receive federal funding. In support of these goals, the commission and the FRA developed the Southeast Regional Rail Plan, reporting on the economic benefits of rail along the corridor, creating a development strategy and prioritizing major projects.

The Commission received a \$1 million FRA grant in 2017, formalizing a plan to advance the mission

of high-performance rail in the Southeast and to conduct planning studies to develop and implement the Southeast Corridor.

SOUTHEAST REGIONAL RAIL PLAN

The six southeastern states and Washington, DC, in partnership with the FRA, developed a long-term passenger rail vision for the Southeast. This regional rail plan explores the potential for high-performance rail and projects intercity connections over the next 40 years. The plan analyzed existing conditions, future travel demand and multimodal options throughout the area. The study builds on state planning efforts and other activities in the region.

The plan identified opportunities for growth and outlined next steps that included:

- How the Southeast Corridor would connect with other regions, including the Northeast Corridor and Midwest, and cities such as Chicago and New Orleans
- Recommendations into state rail plans and long-range plans



- Conducting an Atlanta terminal study to understand and define future connections with Atlanta as a transportation hub
- Defining and developing structures to implement the regional rail network and ensure the commission operates smoothly

ECONOMIC BENEFITS OF HIGH-PERFORMANCE RAIL IN THE SOUTHEAST

The economic benefits study provides quantifiable proof that high-performance rail in the Southeast has far-reaching direct and indirect benefits. The analysis concluded that the total economic value of benefits from implementing high-performance rail in the Southeast would be between \$27.29 million and \$41.83 billion (in 2020 dollars).

New and improved rail infrastructure will help transport goods, reduce highway congestion, improve safety, reduce emissions, and expand connectivity for passengers and freight throughout the Southeast. Improvements in rail capacity through Washington, D.C., also will enhance connectivity between the Southeast and major urban centers along the Northeast Corridor.

In addition, the development of the Southeast Corridor is estimated to:

- Provide between 7 million and 9 million passenger rail trips annually

- Create as many as 54,000 new jobs in the region during construction

- Sustain as many as 45,000 new jobs in the region due to station area developments

- Provide access to high-performance rail connections for between 5 million and 9 million residents

- Connect between 3 million and 6 million jobs to high-performance rail stations

SOUTHEAST CORRIDOR DEVELOPMENT STRATEGY

The SEC Development Strategy, which is scheduled to be completed in Spring 2022, aims to summarize service and infrastructure recommendations from past studies and identify actionable next steps through the lens of changes in the rail industry and state rail operations. The plan is reviewing various stages of development for each section, from feasibility through NEPA, engineering, property acquisition, and construction, with recommendations for federal funding possibilities.

THE S-LINE: MAJOR STEP IN SEC DEVELOPMENT

The S-Line corridor that runs from Raleigh to Petersburg is a key component in making the Southeast Corridor a reality. Previously, railroad mergers and a growing highway system left



much of the S-Line struggling. With all passenger service, and most freight traffic, shifted east to the A-Line, this section of the S-Line, much of which is owned by CSX Transportation, is underutilized and temporarily preserved.

Restoring the S-Line and completing the Southeast Corridor will provide expanded transportation options for freight and passenger networks. Development of the corridor will benefit residents, visitors, municipalities, and public and private industries. As a result, completing the Southeast Corridor is expected to create an innovative model for expanding rail transportation options throughout the rest of the state.

A major step forward to finalizing the critical link of the Southeast Corridor was taken in September of 2020. NCDOT received a \$47.5 million grant from FRA to purchase the S-Line corridor between Raleigh and Ridgeway, NC. This grant built on Virginia's acquisition from CSX of their portion of the S-Line from Ridgeway, NC, to Petersburg, VA.

Additionally, NCDOT received a \$1 million grant from the Federal Transit Authority (FTA) to develop a vision for the S-Line corridor that will link urban and rural economies and communities in the region through Transit Oriented Development (TOD). These grant funds will help towns along the corridor develop plans to explore ways the rail stations can bolster their economic development efforts.

North Carolina and Virginia have submitted a joint Consolidated Rail Infrastructure and Safety Improvements (CRISI) grant request for \$57.9 million to conduct a land survey and engineering from Raleigh to Richmond. This step will pave the way for construction, including all new track and signal systems, and safety projects that will have immediate benefits through roadway crossing grade separations and closures.

SEIZING THE OPPORTUNITY

The S-Line and the Southeast Corridor hold immense opportunities for North Carolina and the region. The commission and member states are hopeful that the Infrastructure Investment and Jobs Act (IIJA) will provide the federal funding needed to advance plans for construction and provide initial operating support. With \$103 billion in new supplemental funding to support investments in rail infrastructure nationally, the IIJA can be a true game-changer. The Southeast Corridor Commission is ready to seize the opportunity and develop the regional rail network we've been working toward for years.



SOUTHEAST CORRIDOR COMMISSION
(southeastcorridor-commission.org)

RAILWAYS NEED DISRUPTIVE INNOVATION

Contributed by: Andy Nash

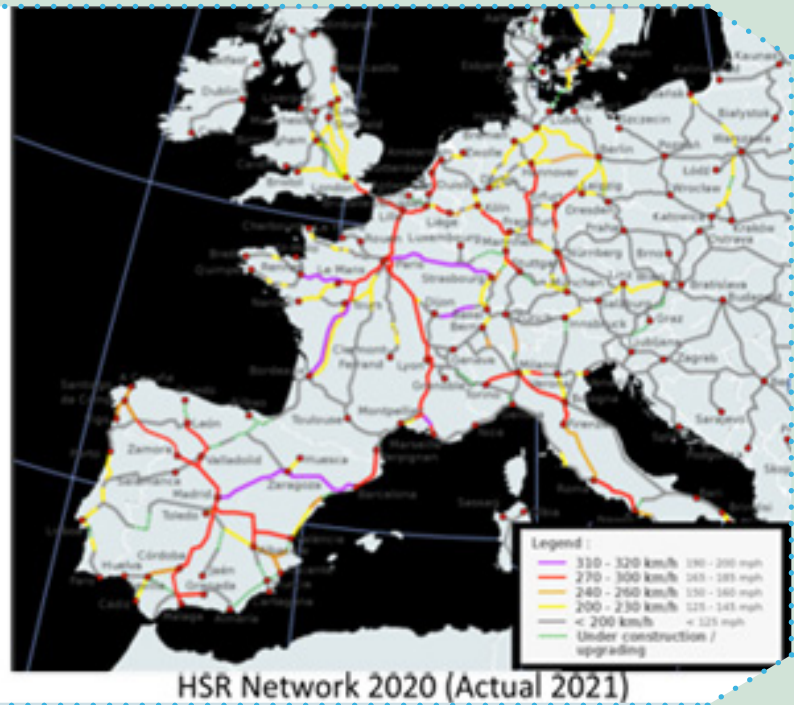
IN 2008, THIS AUTHOR PRESENTED A PAPER TITLED “EUROPE’S HIGH-SPEED RAIL NETWORK: MATURATION AND OPPORTUNITIES” AT THE TRB ANNUAL MEETING. THE PAPER ARGUED THAT “HIGH-SPEED RAIL NEEDS DISRUPTIVE INNOVATION TO CREATE ATTRACTIVE AND NEW SERVICES TAILORED FOR TODAY’S TRANSPORT DEMANDS”.

THE PAPER DESCRIBED SEVERAL PROJECTS COMPLETED IN 2007 THAT COULD SERVE AS SEEDS FOR THAT DISRUPTIVE INNOVATION, AND POSSIBLE INNOVATION PATHS. UNFORTUNATELY, THE HOPED-FOR INCREASE IN RAILWAY MODE SHARE HAS NOT HAPPENED. FURTHERMORE, THE WORSENING IMPACTS OF CLIMATE CHANGE HAVE MADE SHIFTING TRANSPORT TO RAIL EVEN MORE CRITICAL. THIS ARTICLE ASSESSES THE ORIGINAL PAPER’S “SEED” PROJECTS AND USES THIS ASSESSMENT TO HELP SKETCH A NEW SET OF POSSIBLE DISRUPTIVE INNOVATION PATHS BASED ON CURRENT SOCIAL NEEDS AND TECHNOLOGY.

The disruptive innovation called for in the original paper meant using new technology and organizational change to significantly increase railway transport’s mode share. The term disruptive is used to both define the degree of technical and organizational change as well as magnitude of the result (significant change in market share for a mature industry).

Unfortunately, as shown in Table 1, railway mode share in Europe has only slightly increased in the last 15-years (figures for goods transport are similar). This indicates there has been no disruptive innovation.

| Mode Share (in Percent) and Total Passenger Kilometers – 2005 vs 2019 | | | |
|--|-------|-------|--------|
| Transport Mode | 2005 | 2019 | Change |
| Passenger Cars | 73.2 | 71.6 | -1.6 |
| Passenger 2 wheels | 2.2 | 1.9 | -0.3 |
| Bus and Coach | 9.5 | 8.1 | -1.4 |
| Railway | 6.5 | 7.0 | 0.5 |
| Tram and Metro | 1.4 | 1.4 | 0 |
| Air | 6.9 | 9.7 | 2.8 |
| Sea | 0.4 | 0.3 | -0.1 |
| Total Passenger Kilometers (Billion) | 5,247 | 6,038 | 15% |
| Source: European Commission, Statistical Pocketbook 2021, EU Transport in figures, 2021. | | | |



The relatively minor growth in railway mode share is very disappointing for a technology expected to help Europe achieve its climate goals and environmental objectives. Therefore, acknowledging that it is much easier to recommend disruptive innovation than to implement it, the paper repeats the earlier recommendation: railways need disruptive innovation.

CREATING A EUROPEAN HSR NETWORK: 2007 INNOVATIONS

The original paper's thesis was that creating a "true" European HSR network would facilitate development of a fully integrated railway-centered transport system by providing new service to an important market niche (400-600 km cross border trips). Increasing rail's potential market by adding this important segment would initiate disruptive innovation including adoption of new technologies and changes to long established business processes and systems throughout the railway sector.

The original paper described four projects completed in 2007 that could have been seeds for

jump-starting this European HSR network:

- LGV Est (infrastructure project and new market entrant)
- Swiss Alpine Basis Tunnels (Loechberg 2007 and Gotthard 2017)
- Channel Tunnel High Speed Line (London to tunnel entrance)
- Railteam (an airline-like alliance of HSR operators)

The infrastructure projects were all expensive, as well as being difficult and time-consuming to plan, finance and build. But by making substantial reductions in travel times, they all had the potential to significantly increase market share for cross border trips. Today all three projects are successful, but they haven't had the hoped-for network-building effect.

Railteam was included in the list of seed projects because it directly addressed creating the perception among travelers of a true European HSR

network by establishing an airline-like alliance of railways designed to make international HSR travel more seamless and attractive. By directly addressing traveler perception Railteam is an excellent strategy, however today it has faded from. However, a close look at the 2020 map still shows gaps between national networks (i.e., border crossing sections with lower speeds or capacities). These types of international gaps are also widely recognized problems for the Swiss Alpine basis tunnels and LGV Est project.

Finally, the European Commission's 2011 Transport White Paper formally recognized the need for a true HSR network by adopting a goal of tripling Europe's HSR network by 2030. In 2018 the European Court of Auditors concluded this goal would not be met due to the long period required for planning, financing, and building HSR lines. Key problems included high costs, a lack of funding, insufficient strategic planning, and nationally oriented infrastructure planning.

In summary, the objective of creating a European HSR network has not yet been achieved and, more importantly, railway transport's mode share has not significantly increased despite the pressing need created by climate change. More than ever railways need disruptive innovation. The following sections sketch some possible innovation paths.

DISRUPTIVE INNOVATION PATHS FOR THE RAILWAY SECTOR 2022

The disruptive innovation paths recommended below apply new technologies and changes to established business processes and systems to support creation of an attractive and efficient European railway network. As mentioned above, this involves not only infrastructure, but institutional and business culture changes needed to create a strong perception among customers that they can rely on railway transport to meet (most of) their transport needs.

EUROPEAN HSR NETWORK

Creating a true European HSR network would have two main benefits. First, it would encourage cross-border rail travel in the 400-600-km market thereby

reducing the number of short flights. Second, by increasing rail travel, it would support making further improvements to national, regional, and local public transport networks (a benefit also cited by proponents of the California HSR project).

The European Court of Auditors, in their 2018 assessment of HSR development, called for improved strategic planning, prioritizing funding for critical projects (e.g., cross-border routes), developing processes for facilitating cross-border projects, simplifying international railway operations, and implementing programs to support more seamless travel (e.g., ticketing). The report also recommends carefully considering maximum speeds, recognizing that higher speed track is more difficult and expensive to build, and may provide only marginal travel time benefits.

Two disruptive innovations that could supplement these highly pragmatic recommendations are better targeting European funding and significantly improved inter-organizational coordination of projects and operations (rail, air, public transport, urban development). Both have been recommended for many years. What's different now?

First, climate change has started to motivate changes in funding policy as evidenced in Europe's recently developed green new deal. Second, new digital technologies are making the nuts and bolts of coordination easier. In both cases what's needed is strong political will to force implementation. Here the recent entry of the Green Party into the German and Austrian national governments bodes well.

ETCS – DIGITAL STRATEGY

The European Train Control System (ETCS) is a digital system supporting railway interoperability by providing a common signaling system. It is also expected to reduce signaling system costs and increase railway capacity.

ETCS deployment has been disappointing. In 2017 the European Court of Auditors found that ETCS has suffered from similar problems as HSR,

namely lack of strategic planning and funding. The main problem is that much existing signaling infrastructure and on-board systems still have useful life and therefore it is not economically beneficial to replace it. Therefore, ETCS is mostly being implemented piecemeal on new or upgraded lines.

Up to now ETCS illustrates a common problem for well established businesses, the application of new technology to old processes problem. More specifically, if ETCS simply replaces existing signaling, there is little business case for aggressive implementation. If, on the other hand, ETCS digital data could be used to significantly improve railway service and efficiency, then it could pay for itself many times over.

Several European programs are researching and developing technologies to better use ETCS and digital data including the Europe's Rail Joint Undertaking (replacement for Shift2Rail). Importantly, the new research program will take a more structured system approach that considers the full concept of operations and deployment, arguably addressing a criticism of Shift2Rail by considering the broader changes to established processes and systems needed to take full advantage of new technology.

Another potential disruptive innovation is Denmark's work on developing a traffic management system (TMS) that combines ETCS digital data and process changes to improve railway operations and quality. Denmark's economically justified decision to install ETCS on the entire national network gave it the impetus for thinking more broadly about how ETCS could be used for more than just signaling. Norway is taking a similar approach as part of its recently adopted national ETCS deployment program.

Finally, the EULYNX effort represents an excellent opportunity for facilitating ETCS deployment, but more importantly for railway digitalization in general. EULYNX is a coalition of railways working on the development of common standards for digital equipment such as interlockings. The goal is to create a plug-and-play environment where railways are not tied to company-specific software and equipment (a problem that has plagued

ETCS deployment).

REGULAR INTERVAL VERSUS METRO TIMETABLES

Switzerland's Bahn-2000 program created a nation-wide multimodal transport network with highly coordinated timed transfers at interchange stations (Taktfahrplan). This timetabling strategy, also used in The Netherlands and now being adopted more broadly (e.g., Deutschland Takt in Germany), has been extremely successful in attracting passengers.

Switzerland's adoption of the Taktfahrplan, and associated planning strategy: "not as fast as possible, but as fast as necessary" (to support the Taktfahrplan) was a disruptive innovation brought about by defeat of a national high-speed rail plan by voters.

The key to the regular interval timetable's success is that it fully supports the unconscious perception that one can take the train pretty much everywhere, relatively quickly, from early morning to late in the evening. Rail transport is transformed from something that must be planned to something that's always available (i.e., like an automobile).

Now, the impact of rapidly increasing demand on capacity has led Swiss planners to study alternatives to regular interval timetables. Recent modelling has shown that operating metro-like timetables (frequent all stop trains) could be better for passengers, especially considering the delays that occur in a system operating at near capacity. Interestingly, operating metro-like timetables also further reinforces unconscious network perception.

TIME AND TRAVEL

Transport costs time and money. Up to now technology has focused on reducing transport time because this is simple physics. Today new technology, especially communications, provides opportunities for taking a more nuanced view of time that railways could use to support disruptive innovation.

Using travel time productively is a well-established advantage of public transport (e.g., working on trains). The significant improvement of digital communications technology, and especially its rapid adoption and widespread acceptance during the COVID pandemic has significantly increased opportunities for productively using travel time, but also opens completely new possibilities for thinking about transport and time.

For example, the re-emergence of night trains shows clearly that quality can be preferable to speed. What if railways used digital technology to create products enabling passengers to break-up long trips with stops in attractive intermediate destinations. These personally tailored products could include services like lounges, showers, food, and intermodal connections. They would be changeable in real-time increasing perception of network reliability (e.g., air-rail trips) and allowing for serendipity.

Another opportunity is creating systems that allow scheduling activities around transport. This sounds like the tail wagging the dog, but the time flexibility enabled by digital technology could make it possible to, for example, schedule dental appointments around the public transport timetable; patient waiting time is reduced, dentists generally don't care who comes first, and real time rescheduling can help patients and dentists make best use of their time.

Another, arguably time-related, strategy is railway based urban development. These strategies are well known, but as more of these "15-minute cities" are created and more people experience their attractiveness and economic benefits they should become easier to justify and build. Widespread transformation of railway stations into multimodal hubs in diverse mixed-use neighborhoods would significantly increase railway mode share.

One of the key advantages of these three ideas is that they could reduce travel by supporting

trip chaining (e.g., combined business – pleasure trips). Reducing total travel (itself good for sustainability) would lower the mode share denominator helping boost the impact of railway improvements on railway mode share.

CONCLUSIONS

Many believe that new technologies like electric cars or airplanes are the solution to climate change. However, batteries have very significant environmental and social impacts. Furthermore, electric cars don't solve urban congestion and will likely increase sprawl. Finally, it's hard to see how these technologies can be deployed equitably to provide a rapidly growing world population with a level of transport like that enjoyed by Europeans or Americans today.

That's what's interesting about the disruptive ideas discussed above. They are also based on technology, and, in fact support electric cars and airplanes, but they involve changing established systems and processes for a transport mode that is more "naturally" suited to solving today's serious environmental and social problems. The objective is more railway transport with less driving and flying (not none). The best quality of these ideas is that they all achieve this goal while at the same time improving quality of life.

NOTE

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INTERNATIONAL UNION OF RAILWAYS (UIC)

BACKBONE OF A SUSTAINABLE TRANSPORT NETWORK

Contributed by: Richard Clinnick, Associate Editor
International Railway Journal

Making rail the backbone of a sustainable mobility system by the end of the decade will help decarbonise transport and provide numerous benefits for society, the International Union of Railways (UIC) says in its 2030 vision published on October 29 ahead of the Climate Change Conference (COP26) in Glasgow.

In the vision, Design a Better Future, UIC also issues a call for action to policymakers and world leaders. UIC says that by 2030 railway stations and logistics depots will start to transform into multimodal mobility hubs and that car use will reduce by more effectively connecting cities.

"We are entering the decade of action for decarbonisation," says UIC director general, Mr. François Davenne. "This vision sets out how the transport paradigm must transform. At the COP, I will be calling for the support of world leaders to back rail as an essential ingredient for a net zero carbon transport system."

The vision foresees a world that is implementing the actions required to achieve the goals of the Paris Agreement. High-speed passengers and rail freight volumes have doubled, conventional passenger numbers have recovered and increased by 50 percent, and millions of new green jobs have been created. Diesel trains are rapidly being phased out, with a large-scale programme of main line electrification continuing and bi-mode operation a common practice, establishing rail travel is the background of a sustainable mobility system.

While transport currently accounts for a quarter of all global emissions, the vision foresees these beginning to decrease – a scenario UIC says is only possible with a thriving railway.

The scenario is based on four key transformations:

- transforming cities and connecting communities; transport-oriented development, lighter trains and green city logistics
- energy, technology and innovation with rail taking a leading role in the race to zero carbon and the renewables revolution
- intermodality and the seamless connection with innovations in physical and digital connectivity with other modes for a door-to-door service, and
- customer experience and the cultural transformation of rail towards a more customer-focused service to meet the changing needs and behaviours of freight and passengers.

UIC says stations are the obvious choice for mobility hubs in large cities,, and they can foster sustainable urban development. It says they are seamlessly connected to shared systems and are also preferred areas for urban development.

In the UIC vision, freight also plays a key role in the urban development with many short-distance rail freight designed to connect city hubs, while

the vision foresees some passenger trains carrying goods with electric vehicles offering last mile transport.

A central objective of rail investments is to balance regional prosperity by creating better links for passengers in rural areas, smaller communities and towns.

UIC says that by the start of the new decade it hopes many countries will have been declared as net zero in terms of greenhouse gas emissions and are operating entirely with renewable energy. UIC's vision is for no diesel-only trains to operate on electrified lines with alternative power solutions including green hydrogen and batteries in use. There are also plans to develop non-diesel work trains and freight trains which will help with the modal shift from road and aviation to rail.

The vision states that some countries will begin installing more dedicated renewable energy generation and storage on railway land, including on buildings and at the line-side. The sector should also use its influence as a consumer of electricity to buy and encourage the expansion and accelerate the

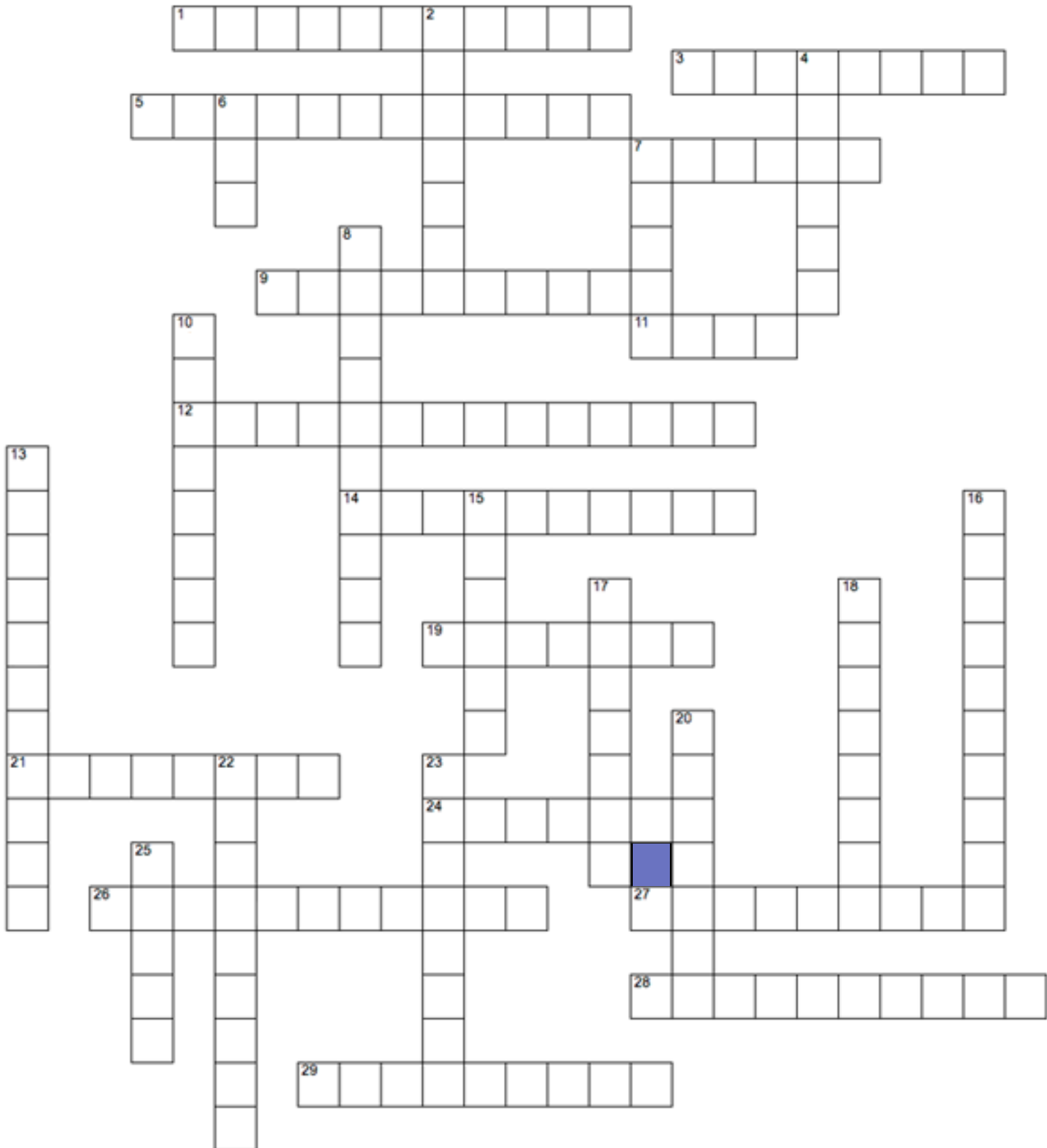
development of renewable power and alternative green fuel generation. Regenerative braking will also be common in leading regions by 2030, the vision says. Technologies including hyperloop and permanent magnet synchronous traction systems are also being developed to provide energy-efficient train traction systems for high-speed lines connecting with conventional lines.

"Sustainability lies at the heart of rail activities, today more than ever before," says Mr. Patrice Couchard, chair of the Global Rail Sustainability Taskforce and director general, Stations at Belgian State Railways (SNCB).

"More than ever before, and in the context of the global coronavirus pandemic, the SDGs need to be on the to-do list for people and the planet as the blueprint for success," says Mr. Philip Turner, UITP head of sustainability. "Citizens, cities and the planet will be better off with more public transport. It improves our lives in so many ways and is the shot in the arm for our economies to fully rebound now and build us back better in the future."



Sustainable development is considered one of the main global challenges facing the world today and is an important aspect of transport development.



Spring

CROSSWORD



Across:

1. An eco-friendly alternative to short-distance air travel by reducing emissions
3. Longest railway tunnel
5. Economic stimulus package enacted by the 111th United States Congress
7. Highest railway bridge crosses over this river
9. Operable in 1964
11. Tunneling connecting the French and Italian networks
12. Right-of-way, track, signals, and stations needing upkeep
14. More than one type of transportation mode for transporting goods or passengers
19. HS2 forming the backbone of this transport network
21. The best way to travel between London from Amsterdam, Brussels or Paris
24. This train travels from Madrid to the southern cities of Algeciras, Granada, Cartagena and Murcia
26. The faster the train, the greater the force
27. Oldest railway still in operation
28. Intercity rail operator planning to have a station in Ybor City by 2028
29. America's oldest operating railroad

Down:

2. Complex rail system
4. Common train mode between Paris and Amsterdam
6. Four generations marking 30 years of high-speed rail
7. HSR carrying more than twice as many passengers as its domestic airlines
8. London underground Station
10. Busiest train station in the world
13. HSR offers travelers an alternative to dealing with this frustration and delay
15. HSR efficiencies
16. Networks of metropolitan regions with shared economies
17. New York's Central Railroad, Track 61 is above this hotel
18. A good prevention for train movements through an improperly positioned switch
20. Slowest express in the world
22. Technology known for higher speeds round bends
23. World's highest railway point above sea level
25. Large cities often rely on this system

